

DEPARTMENT OF THE AIR FORCE
AIR FORCE CIVIL ENGINEER CENTER

21 July 2015

AFCEC/CIBW
706 Hangar Road
Rome, NY 13441-4105

Mr. Patrick Shinabery
Arizona Department of Environmental Quality
1110 West Washington Street, 4415B-1
Phoenix, Arizona 85007

Subject: Response to 22 June 2015 ADEQ Comments on
Progress Report June 9-15 dated 17 June 2015
Steam Enhanced Extraction - Site ST012
Former Williams Air Force Base

Dear Mr. Shinabery:

The Air Force is pleased to submit the attached responses to Arizona Department of Environmental Quality (ADEQ) comments dated 22 June 2015 on the Steam Enhanced Extraction Progress Report dated 17 June 2015 for Site ST012 located at the former Williams Air Force Base in Mesa, Arizona.

Clarification Request 1 - Mass Removal

1A) Why did the cumulative mass estimates for vapor phase increase?

On June 1, 2015, the Thermal Accelerator Inlet Mass Load (based on Lab) Cumulative was just over 100,000 lbs. on Figure 3. On June 15, 2015, Figure 3 shows this cumulative mass as ~350,000 lbs. Values reported for earlier dates also appear to be increased in Figure 3.

Response:

When the 1 June 2015 report was produced, TerraTherm had not yet received the vapor phase laboratory data for the 8 April 2015 and 6 May 2015 sampling dates and the mass removals were based on earlier analytical data. The April data were received on 3 June 2015 and the May data were received on 16 June 2015 and were included in the progress report for week ending 15 June 2015 by adjusting the data back to the date that the samples were collected. This increased the mass removal.

1B) Was the laboratory data revised?

Similarly, the reported cumulative mass in the vapor phase based on the PID readings was also doubled to over 400,000 pounds. The cumulative mass removed is based on the vapor extraction data multiplied by the concentration data. The vapor extraction rates shown in Figure 1 appear to be unchanged. The PID readings in Figure 2 for the accelerator influent appear to be unchanged.

Response:

Similar to the response for 1A above, when the 1 June 2015 progress report was produced, TerraTherm had not yet received the vapor phase lab data for the 8 April 2015 and 6 May 2015 sampling dates. The vapor phase lab data are used to calculate a correction factor for the PID readings. With the addition of the new lab data, TerraTherm updated the correction factors applied to the PID readings since the 8 April 2015 sampling date and that correction increased the cumulative mass removal. The PID readings shown in Figure 2 of the progress reports are the raw PID readings collected by the SEE operators, so that figure did not change.

Clarification Request 2 - Daily Mass Removed

Why are historical PID and laboratory-based data increased from previous reports back to February 2015?

Figures 1 and 2 do not indicate any revision to the vapor extraction rate or PID readings used to calculate the daily mass removed.

Response:

In reviewing the mass calculations following the addition of the 8 April 2015 and 6 May 2015 lab data, it was discovered that the lab vapor concentration portion of the calculation had not been updated for the 18 February, 25 February and 11 March 2015 lab data. All of the appropriate lab data had been used to correct the PID readings, accounting for the majority of the mass, but the lab concentrations for those dates had not been updated. So, the corresponding vapor lab concentrations were added to the mass removal calculations which changed the lab-based mass removal. Prior to the change, the cumulative mass removal as of 7 April 2015 based on the lab data was ~85,000 lbs, and following the addition of the February and March lab data, the cumulative mass removal based on lab data for 7 April 2015 was ~130,000 lbs. The mass removed numbers based on PID changed following the 8 April 2015 sampling date due to the addition of the 8 April 2015 and 6 May 2015 lab data.

Clarification Request 3 - Perimeter Water Levels

2A) Does the recent appearance of NAPL at W30 indicate a lack of hydraulic containment to the west of the LSZ TTZ?

2B) Does the persistence of NAPL after bailing in W11 and W37 indicate an increasing accumulation of mobile NAPL near these wells?

Response:

The removal of NAPL from wells W11, W30, and W37 represents mass removal from locations that had detected NAPL prior to SEE. It is likely that NAPL outside of the TTZ (as has been detected at W11, W30 and W37 prior to the startup of the SEE system) is being collected due to hydraulic changes around the SEE treatment zone allowing it to be pumped out and removed. The accumulation of NAPL as it relates to hydraulic containment is included in the response to comments on the Response to 22 June 2015 ADEQ Comments on WAFB - ADEQ Evaluation of USAF Response to ADEQ Comments; Weekly Progress Report 27 April 2015 and Progress Report 4 May 2015; Steam Enhanced Extraction at the Former Williams AFB, ST012 Site, Mesa, AZ; ADEQ document dated 14 May 2015.

Clarifying Comment 4- Estimated Formation Water Temperature

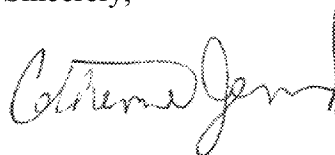
The addition of Table 4 is very informative.

Response:

Noted.

Please contact me at (315) 356-0810, ext. 204 or catherine.jerrard@us.af.mil if you have any questions regarding this report.

Sincerely,



CATHERINE JERRARD
BRAC Environmental Coordinator

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